Nikos Askitas

Research, Data & AI Leadership | Applied Mathematics | Economic Research

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PROFILE

Mathematician, researcher and technology leader working at the intersection of artificial intelligence, data science, economics and research infrastructure. More than two decades of experience translating methodological ideas into operational systems, data products, international collaborations and peer-reviewed research. Former Director of Data and Technology at IZA and Head of its IT unit and International Data Service Center (IDSC); inventor of JoSuA, a secure remote code-to-data system used in research-data environments. Current advisory work spans AI strategy, data science and research funding. Combines hands-on technical capability, institutional leadership and a sustained academic publication record.

LANGUAGES

Greek (native); English and German (fluent); French and Italian (intermediate reading/listening).

SELECTED PUBLIC ENGAGEMENT

Invited talks on generative AI and labour markets, economic nowcasting, data-driven policymaking and research infrastructure (including LISER, ETH/University of St. Gallen, CEDEFOP and central-bank audiences). Research and data products have attracted international coverage, including CNN International, *Financial Times*, *New York Times*, Bloomberg and *Washington Post*.

SELECTED CONTRIBUTIONS

- **Privacy-preserving research infrastructure:** Conceived **JoSuA**, a remote-execution framework that lets external researchers submit analysis code to sensitive data environments while data remain under the custodian's control and outputs are subject to disclosure review; deployed, among other settings, at the research data centre of Germany's Federal Employment Agency (IAB/FDZ).
- **Novel economic indicators:** Co-developed the **Toll Index**, using German road-freight activity to nowcast business-cycle developments; developed/published the **IZA/Fable SWIPE Consumption Index**, drawing on near-real-time consumer data.
- **Research and technology leadership:** Directed data/technology functions and research-data services at IZA, bridging information technology, sensitive-data access, data management and scientific needs.
- **Cross-sector partnerships:** Advised or carried out projects for international and public-sector organisations including the IMF, OECD, PARIS21 and European Commission; contributed to European research-data and labour-market initiatives.
- **Scholarly contribution:** Published across mathematics, computational social science, forecasting and economics, including work in *Scientific Reports*, *PLOS ONE*, *Journal of Forecasting* and specialist mathematics journals; active recent research on generative AI and knot theory.

PROFESSIONAL EXPERIENCE

Expert consultant | Luxembourg Institute of Socio-Economic Research (LISER) 2025–present
Data science, third-party funding and AI strategy

Advisory work connecting research objectives, organisational capabilities and the practical adoption of data and AI technologies as AI Implementation Lead.

Director of Data and Technology | IZA - Institute of Labor Economics, Bonn 2014–2026
Leadership of data, research infrastructure and IT functions

- Led the International Data Service Center (IDSC) and IT/technology functions; linked researchers' needs with operational data systems and secure computing services.
- Advanced data-driven economic research, new data sources and the design of trusted research-data infrastruc-

ture.
- Represented and collaborated with research institutions, public agencies, data custodians and international organisations.

Head, International Data Service Center (IDSC) | IZA 2008–2014
Research-data infrastructure and access

Developed services and partnerships for research-data access, documentation, reproducibility and secure computation. Served concurrently as Deputy Head of IT in 2008.

IT Expert | IZA, Bonn 1999–2008
Information technology and research computing

Provided IT expertise and technical support for the institute's research and operational infrastructure.

Research positions | Max Planck Institute for Mathematics; other institutions 1994–1999
Mathematics research

Leibniz Fellow, Max Planck Institute for Mathematics, Bonn (1994–1996); subsequent visiting and guest research appointments in Bonn and Thessaloniki.

TECHNICAL AND STRATEGIC EXPERTISE

AI and analytics: Machine learning, generative AI/LLMs, text mining, web data, forecasting, applied statistical modelling, economic indicators.
Infrastructure and governance: Secure code-to-data systems, sensitive research data, remote execution, disclosure control, data stewardship, research-data standards and interoperability.
Technology: Python, Stata, R, shell scripting, Perl; Linux/Unix, macOS, Windows; systems architecture and data management.
Leadership: Data and technology strategy, multidisciplinary coordination, partnerships, scientific workshops, training and public communication.

EDUCATION

PhD, Mathematics, Indiana University Bloomington, 1994 Thesis: *On 2-spheres in 4-manifolds*
MA, Mathematics, Indiana University Bloomington, 1990 Emphasis: mathematical logic
BA, Mathematics and Computer Science, Aristotle University of Thessaloniki, 1988

SELECTED PUBLICATIONS AND RESEARCH

Artificial intelligence, data science and economics

Notes on a World with Generative AI
IZA Discussion Paper 18070. Publication link.

The Behavioral Signature of GenAI in Scientific Communication
IZA Discussion Paper 18062. Publication link.

A Hands-on Machine Learning Primer for Social Scientists: Math, Algorithms and Code
IZA Discussion Paper 17014. Publication link.

The IZA/Fable Swipe Consumption Index
Jahrbücher für Nationalökonomie und Statistik. DOI.

Lockdown Strategies, Mobility Patterns and COVID-19
With K. Tatsiramos and B. Verheyden. *Scientific Reports*. Article.

Explaining Opinion Polarisation with Opinion Copulas
PLOS ONE. DOI.

Nowcasting Business Cycles Using Toll Data
With K. F. Zimmermann. *Journal of Forecasting* 32 (2013), 299–306. DOI.

Google Econometrics and Unemployment Forecasting
With K. F. Zimmermann. *Applied Economics Quarterly* 55 (2009), 107–120.

Mathematics

The 4-move kills the Alexander polynomial
Research preprint, arXiv:2606.24268 (2026).

On Knot Adjacency
With E. Kalfagianni. *Topology and its Applications* 126 (2002), 63–81.

On Pairs of Locally Flat 2-Spheres in Simply Connected 4-Manifolds
Mathematische Zeitschrift 228 (1998), 131–153.

Embedding of 2-Spheres in 4-Manifolds
Manuscripta Mathematica 89 (1996), 35–47.

Additional publications in economics, policy, data technology and mathematics are listed in the linked academic profiles.

SELECTED PROJECTS, SERVICE AND INTERNATIONAL ENGAGEMENT

- **JoSuA4DTM (2023–2024):** German Federal Ministry of Education and Research (BMBF) project on secure FAIR data enclaves and data-trustee models.
- **Labour-market data:** PARIS21 initiative on emerging labour-market data sources; European Commission-supported projects on online talent platforms and industrial relations in the collaborative economy.
- **Scientific convening:** Co-organised the eight-year workshop series on online matching of workers and jobs (2018–2025), including events with ETH KOF and LISER; initiated the European DDI users' conference series (EDDI).
- **Professional service:** PLOS ONE Academic Editor (Economics); guest editor, *International Journal of Manpower*; scientific/review committees, including the Canada Foundation for Innovation and European research networks.
- **Teaching and training:** Delivered practical courses in Python, machine learning, text mining, web scraping and Stata/Python integration for researchers at universities and professional meetings.